

From: [McCarter, Jennifer](#)
To: [Bailey, Treasure](#); [Jacobson, Linda](#)
Cc: [Churchill, Stephen](#); [Pearson, Janice \(she/her/hers\)](#); [Bunch, William](#); [Morrison, Kendra](#); [Reeves, Molly](#); [Rohr, Matthew](#); [Kilty, Quinn V](#); [Bodry, Renee A](#); [Bloomberg, Jon H](#)
Subject: RE: Comanche cross sections and proposed wells
Date: Wednesday, November 25, 2020 3:20:52 PM

Thanks Treasure, you too, and we'll provide email updates during drilling as we did in Phase 1.

Jennifer McCarter, R.E.M.

Xcel Energy

Environmental Analyst

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From: Bailey, Treasure <Bailey.Treasure@epa.gov>

Sent: Wednesday, November 25, 2020 2:36 PM

To: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>; Jacobson, Linda <Jacobson.Linda@epa.gov>

Cc: Churchill, Stephen <Churchill.Stephen@epa.gov>; Pearson, Janice <pearson.janice@epa.gov>; Bunch, William <Bunch.William@epa.gov>; Morrison, Kendra <Morrison.Kendra@epa.gov>; Reeves, Molly <Molly.Reeves@hdrinc.com>; Rohr, Matthew <Matthew.Rohr@hdrinc.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>; Bodry, Renee A <Renee.A.Bodry@xcelenergy.com>; Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>

Subject: RE: Comanche cross sections and proposed wells

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Ok, thank you Jennifer.

With the information available this approach makes sense to me. I think it would be important to confidently identify the *bottom* of the upper saturated zone in the new well proposed near W-5 if possible. Well, good to have that confidence in all wells, but especially in the vicinity of the impoundment where there appears to potentially be groundwater mounding.

Please keep us posted.

Thank you, and have a happy Thanksgiving!

Treasure

From: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>

Sent: Wednesday, November 25, 2020 1:15 PM

To: Bailey, Treasure <Bailey.Treasure@epa.gov>; Jacobson, Linda <Jacobson.Linda@epa.gov>

Cc: Churchill, Stephen <Churchill.Stephen@epa.gov>; Pearson, Janice <pearson.janice@epa.gov>; Bunch, William <Bunch.William@epa.gov>; Morrison, Kendra <Morrison.Kendra@epa.gov>; Reeves, Molly <Molly.Reeves@hdrinc.com>; Rohr, Matthew <Matthew.Rohr@hdrinc.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>; Bodry, Renee A <Renee.A.Bodry@xcelenergy.com>; Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>

Subject: RE: Comanche cross sections and proposed wells

No problem Treasure, you are correct. The wells would all be drilled through the weathered

bedrock and be completed in competent bedrock. The geologist will log all holes and the screens will be set at the uppermost water surface which we expect to be in the weathered shale or alluvium. The site conceptual model is that the uppermost groundwater is in the unconsolidated material and based on the very low hydraulic conductivity (10^{-7} to 10^{-9} cm/s) of the unfractured shale, groundwater preferentially flows above the competent shale. Therefore, if there are constituent of concern in groundwater from the bottom ash pond, they would be observable in this zone and if a well is dry above the competent bedrock, there would be no need to drill deeper. The conclusion would be that the uppermost groundwater is not present at these dry locations, similar to what we observed in W-8.

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From: Bailey, Treasure <Bailey.Treasure@epa.gov>

Sent: Wednesday, November 25, 2020 7:27 AM

To: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>; Jacobson, Linda <Jacobson.Linda@epa.gov>

Cc: Churchill, Stephen <Churchill.Stephen@epa.gov>; Pearson, Janice <pearson.janice@epa.gov>; Bunch, William <Bunch.William@epa.gov>; Morrison, Kendra <Morrison.Kendra@epa.gov>; Reeves, Molly <Molly.Reeves@hdrinc.com>; Rohr, Matthew <Matthew.Rohr@hdrinc.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>; Bodry, Renee A <Renee.A.Bodry@xcelenergy.com>; Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>

Subject: RE: Comanche cross sections and proposed wells

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ies for multiple emails – I also would like to confirm that although coring is not anticipated, there will be a geologist onsite logging the new wells?

From: Bailey, Treasure

Sent: Wednesday, November 25, 2020 7:12 AM

To: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>; Jacobson, Linda <Jacobson.Linda@epa.gov>

Cc: Churchill, Stephen <Churchill.Stephen@epa.gov>; Pearson, Janice <pearson.janice@epa.gov>; Bunch, William <Bunch.William@epa.gov>; Morrison, Kendra <Morrison.Kendra@epa.gov>; Reeves, Molly <Molly.Reeves@hdrinc.com>; Rohr, Matthew <Matthew.Rohr@hdrinc.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>; Bodry, Renee A <Renee.A.Bodry@xcelenergy.com>; Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>

Subject: RE: Comanche cross sections and proposed wells

Thank you, Jennifer.

My takeaway/understanding from yesterday's conversation was that the new wells are anticipated to be screened in weathered shale (or potentially alluvium), but would be completed/TD at competent bedrock for better characterization of saturated thickness? In the event that no water is encountered in a given well, drilling will continue to competent bedrock, but not deeper? I want to

make sure I fully understand the drilling plan before we provide any final thoughts today and appreciate any correction or clarification.

Treasure

From: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>

Sent: Tuesday, November 24, 2020 5:44 PM

To: Bailey, Treasure <Bailey.Treasure@epa.gov>; Jacobson, Linda <Jacobson.Linda@epa.gov>

Cc: Churchill, Stephen <Churchill.Stephen@epa.gov>; Pearson, Janice <pearson.janice@epa.gov>; Bunch, William <Bunch.William@epa.gov>; Morrison, Kendra <Morrison.Kendra@epa.gov>; Reeves, Molly <Molly.Reeves@hdrinc.com>; Rohr, Matthew <Matthew.Rohr@hdrinc.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>; Bodry, Renee A <Renee.A.Bodry@xcelenergy.com>; Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>

Subject: Comanche cross sections and proposed wells

Treasure, Linda, All – thank you for the discussion this afternoon. Attached are the slides showing the proposed monitoring wells and cross-sections with the correction we noted on the call today.

Jennifer McCarter, R.E.M.

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